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# THE DEMAND FOR DEPOSIT SERVICES IN THE RURAL AREAS OF THE DOMINICAN REPUBLIC

by

Claudio Gonzalez-Vega

Jose Alfredo Guerrero

Archibaldo Vasquez

Cameron Thraen



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Agricultural Finance Program
Department of Agricultural Economics
and Rural Sociology
The Ohio State University
2120 Fyffe Road
Columbus, Ohio 43210

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## Introduction

With the collapse of the developing countries' access to the international financial markets, the sharp reduction in the flows of foreign financial assistance in the 1980s, and the sudden end of the cheap credit era, the mobilization of these countries' untapped domestic savings potential is no longer an exclusively academic question. For many of these countries, an improvement of the volumes and quality of their domestic savings and investment activities is one of the most important ingredients in their economic recovery programs. Moreover, a growing consensus has been emerging about the opportunities for achieving these goals with the mobilization of deposits through financial intermediaries in the rural areas [Adams (1983), Bhatt, Dell'Amore, Ferrari and Mauri, Fischer, Gonzalez-Vega (1985), Holst, Mittendorf, Ohlin, Poyo (1986), Vogel, Wachtel, and many others].

As with many other economic controversies, however, especially those about arrangements from which powerful interests groups have been capturing rents, policy reforms take place more because of changes in the conditions of the real world than for the superiority of one theory over its rivals. Increasing attention to the domestic funds mobilization potential has been more a response to changes in the economic environment than a reflection of a conclusive consensus about the advantages of alternative development strategies (Poyo, 1988). It is not surprising, therefore, that the challenge to the postulates behind the neglect of rural deposit mobilization has been taking place in a new battlefield; the design of internationally-funded projects that include rural deposit mobilization as a major component. Although much has been written about deposit mobilization and its role in the development of rural financial markets and about the responsiveness of rural depositors to interest rate incentives, little evidence has been gathered about the behavior of rural depositors [Argyle; Benoit; Lanyi and Saracoglu; Mauri; Mottura; and several others]. The new deposit-mobilization projects, however, have offered fresh evidence on these issues [Burkett; Gonzalez-Vega and Poyo; Khalili; Poyo (1986); and Vogel). This paper documents evidence of a large demand for deposit facilities in the rural areas of the Dominican Republic and about the responsiveness of rural households to different incentives to deposit, in connection with the USAID-sponsored Rural Savings Mobilization Project (RSMP) in the Dominican Republic (Guerrero, Vasquez).

## The Rural Savings Mobilization Project

The RSMP was designed as a pilot effort "to demonstrate the feasibility of mobilizing voluntary savings in the rural areas of the Dominican Republic." Its main objective was to strengthen institutions and to promote policy changes in order to improve the supply of financial services, both loans and deposits, for the rural population. One of the project components was a deposit mobilization campaign at the Banco Agricola (BA), a large, public agricultural development bank. Since its creation in 1945, the BA had been authorized to mobilize deposits from the public, but it chose never to do so. The institution always enjoyed access to low-cost rediscounting and donor funds. When in the early 1980s these "easy" sources of loanable funds dried up, the BA finally contemplated deposit mobilization as an option. The RSMP provided the impetus required to put the new intentions to practice and the Ohio State University's Rural Financial Markets Program contributed the RSMP's technical assistance inputs (Gonzalez-Vega and Poyo).

Looking back, the skepticism that surrounded the adoption of the RSMP seemed justified. The agricultural sector was in the midst of one of its worse crisis ever, inflation had accelerated and financial repression was acute, and the BA not only lacked any experience in deposit mobilization, but it was a troubled institution, overwhelmed by delinquency, endowed with poor human resources, burdened by obsolete administrative practices, and vulnerable to political intrusion. The outstanding success of the project, therefore, deserves an explanation, that goes beyond the scope of this paper (Gonzalez-Vega and Poyo). The strong demand for deposit services in the rural areas, even under the most adverse conditions, is certainly one of the most important reasons for this success. This paper explores the determinants of this demand.

The growth of BA deposits surpassed the expectations of the sponsors of the RSMP. Designed as a pilot project to be tested in a few branches, after a year it encompassed most of the BA network of 31 branches, the largest and most spread out in the country. Three years after its onset, in July of 1987, the BA had mobilized DR$ 16 million (US$ 4.4 million) in the form of 56,417 passbook savings accounts (for DR$ 12 million), 330 term deposits (for DR$ 2 million), and DR$ 2 million in financial certificates, as shown in Table 1. By November of 1987, the number of savings accounts reached 68,485, while deposit mobilization had surpassed DR$ 22 million. This number of savings accounts, the largest for any bank in the country, compares well with a portfolio of 85,705 loans (and much less borrowers, given multiple loans). Although the rapid incorporation of branches into the program explained the early growth of deposits, the growing trend continued after all branches had been included. A large number of small, rural accounts has characterized mobilization in

all regions of the country. As shown in Table 2, there has been no concentration in any particular branch and average size of deposit has been relatively small everywhere.

The success of the BA in the marketing of passbook savings accounts, the traditional instrument for small depositors, has puzzle many. The BA achieved this growth of deposits by offering its liabilities at essentially the same terms and conditions offered by other competitors in the regulated markets, but at interest rates well below those found in unregulated financial markets (Zinser and Gonzalez-Vega). Moreover, notwithstanding that the BA was an "infant" in the market for deposits and notwithstanding traditional Dominican policies to use fiscal and other incentives to promote financial development, no compulsory depositing mechanism was designed to back up the RSMP, although the BA had the political clout to do it. BA's two main advantages over other newcomers in the market for deposits were its large network of branches and an image gained through a presence for more than four decades as the leading institution in the market for agricultural loans. The network of branches has been a valuable asset. The incorporation of deposit facilities was achieved at relatively low cost, since there was no need to build the required infrastructure. In addition, the BA has been able to generate economies of scope in the joint production of loans and deposits (Cuevas and Poyo).

Moreover, unlike a new entrant into the market that has to build up a reputation, the BA has been a well-known institution. To what extent this reputation was either a plus or a minus would have been a moot question during the gestation of the RSMP. It could have been argued that the bank-customer relationship would have been better described as a love-hate connection. As the only formal institution actively engaged in lending for agriculture for a long time, it would have been loved whenever its coffers were replete with funds to be disbursed at subsidized interest rates. Yet, it would have been despised when a scarcity of funds would have forced clients to rely on informal markets and even more when the BA became strict about loan collection. The BA, however, has been lenient with delinquent borrowers, while the credit crunch might have had promotional value, by highlighting the shortcomings of reliance upon external sources of funds rather than upon the savings of the community. This debate about reputation is now irrelevant, given the success of the bank in marketing passbook savings accounts in all regions of the country.

The RSMP has represented a major boost to the supply of deposit services in the rural areas in a country where there has been an acute urban bias of financial development. Over one-half of all bank branches (58 percent) are in the two main cities, Santo Domingo and Santiago. There are about 11,000 inhabitants per branch in these two cities, compared to 29,000 persons per branch elsewhere in the country. Over 90 percent of commercial

bank credit has been granted in those two main cities. On the other hand, commercial banks have gathered over 70 percent of their deposits from the public in Santo Domingo, over 10 percent in Santiago, and less than 20 percent in the rest of the country. While the rest of the country has contributed less than 10 percent of the better-remunerated term deposits, 30 percent of the poorly-rewarded passbook savings accounts have come from outside of the two main cities. Over 75 percent of the liabilities of the mortgage banks have been placed there. This proportion is almost 100 percent for the development banks, given their privileged access to Central Bank and donor funds (A. Adams).

Two recent Master's thesis at The Ohio State University investigated household depositing behavior. On the basis of a survey of households, Vasquez examined the determinants of their deposits in all types of regulated financial institutions. On the basis of a survey of BA depositors, Guerrero explored the determinants of the success of the RSMP. Both revealed a high demand for deposit services in the rural areas, even in the presence of declining real incomes, high inflation and devaluation expectations, and intense competition for funds from unregulated financial markets. This implies that the observed demand is merely a floor for the mobilization potential. Both revealed also a high elasticity of deposits with respect to incentives (higher interest rates, lower transactions costs, and more promising loan expectations). Guerrero further showed that the RSMP has not only increased rural holdings of financial assets, since the effort has not caused disintermediation in other institutions, but it has also augmented the flow of savings among BA depositors.

## The Vasques Survey

The Vasquez survey was conducted in three municipalities of the Dominican Republic: Rio San Juan, La Vega, and Bani. In all three places, the BA had just began its savings mobilization campaign two weeks before. The purpose of the survey was to learn about the RSMP's potential clientele. The three regions represent a wide variety of circumstances with respect to crops grown and other economic characteristics. Rio San Juan is predominantly a cattle-raising region, while fishing and tourism are also important. Rice and minor crops are the basic agricultural products of La Vega. Important in Bani are coffee and short-cycle crops.

The interviewed households were divided into three strata: urban, semirural, and rural, according to the distance from the main urban conglomerate. Each municipality was segmented into three concentric rings, consisting of the main town, which constituted the urban stratum, and two additional clusters for the semirural and rural strata. A radius of 3 miles from the urban center delineated the semirural zone, while villages beyond that were considered as rural. A stratified random sample of households was drawn and only heads of household were interviewed.

Since the proportion of depositors among the population was not known, a quota procedure was used in order to guarantee a minimum number of depositors (30 percent) in the effective sample, while at the same time being able to estimate the actual proportion of depositors (Vasquez).

The final sample consisted of 551 interviews. Among these, 242 households held deposits in a financial institution (44 percent). This high proportion of depositors was a consequence of the survey design. The highest proportion of depositors was observed in La Vega (49 percent) and the lowest in Rio San Juan (31 percent). This reflected differences in the banking infrastructure in the two regions. La Vega has a developed urban center where about 20 formal intermediaries compete for deposits, while in Rio San Juan Banco Agricola is the only intermediary which offers deposit services and had done so for only two weeks.

Table 3 reports the main characteristics of the depositing and nondepositing households. The proportion of depositors was higher in the urban than in the rural areas, among households with stable situations (single or married, as different from divorced or widowed), among richer households, among the self-employed (rather than wage earners), among the better educated, and among those with better occupations in the secondary and tertiary sectors. The proportion of depositors ranged from 70 percent for those with homes of very good quality to 5 percent for those with very bad houses. Only 22 percent of the illiterate had bank deposits, but this proportion was 73 percent for those with a college education. In particular, only 9 percent of households with monthly incomes of less than DR$ 200 were depositors, but this condition was almost universal beyond DR$ 600. These contrasts reflected both differences in the demand for deposit services by the diverse social groups and differences in their degree of access to these services. Given the limited expansion of the banking network and its strong urban bias, these differences may have reflected more the shortcomings of supply, rather than different preferences among households for these services.

The majority of the depositing households possessed only one account. The instruments chosen were 41 demand deposits, 285 savings accounts, including 12 with the BA, and 10 terms deposits. In addition, the households in the sample had received 138 formal loans. That is, one-fourth of these households had had access to loans during the year of observation. Of these, 87 had been BA loans. Dealing with uncertainty was their main motivation for holding deposits. Two-fifths expected to use the funds for emergencies. This was not surprising, since the low rates of interest earned made deposits a poor income-generating instrument. Those depositors with sufficient funds for whom yield was most important had their money in the nonregulated market. Urban depositors were more concerned about interest rates than rural depositors, possibly because of the lower transaction costs for the

former. The location of the intermediary was the most important reason for preferring one over another (34 percent). This confirms the importance of transaction costs. Confidence in the institution was the next most important reason for generally risk-averse depositors; quality of service was third, and the expectation of a loan fourth. Eighty-four households had had accounts in the past which had been closed. Over 75 percent of the households in the sample claimed that if the interest rates earned were higher, they would deposit more.

The Guerrero Survey

The purpose of the Guerrero survey was to explain the behavior of BA depositors. Depositors from seven branches distributed across the country were interviewed. Three branches (La Vega, Rio San Juan, and Bani) were chosen for comparison with the Vasquez results. The rest were selected in order to incorporate areas with diverse economic activities from all regions of the country. In the South, San Juan is one of the richest agricultural areas and the branch in Comendador has successfully mobilized deposits from poor rural communities close to the border with Haiti. Samana in the Northeast is an important coconut region, where the BA is the only financial intermediary, and El Ceybo in the East is a cattle raising area. These seven branches accounted for one-third of the BA depositors, as shown in Table 2. In view of the size distribution of the deposits, 87 percent of which were below DR$ 500, drawing a simple sample from the population at large was discarded, since the odds of obtaining a significant number of medium and large depositors were very low. Instead, a stratified sample for small (up to DR$ 499), medium (between DR$ 500 and DR$4,999), and large (DR$ 5,000 and above) accounts was selected, with an over-representation of the medium and large depositors. The number of completed interviews (324) represented 26 percent of the original sample and it included 221 small, 92 medium, and 11 large depositors. The spatial distribution of the depositors showed a remarkable dispersion in all the branches. This resulted in the possibility to complete interviews for only 3.1 percent of the depositors at the branches selected.

Table 4 shows the characteristics of the BA depositors in the sample. Most of the depositors were heads of household, married or cohabiting, over 35 years of age, with at least primary education. The vast majority of the rural depositors earned their living in agriculture. In the urban areas, agriculture was also the most important activity of the depositors, but in a much lower proportion (25 percent). These socioeconomic characteristics were very similar to those found by Vasquez for depositors. While Vasquez found the lowest proportion of depositors among farmers, the highest proportion of depositors at the BA are farmers. This may indicate that the former result reflects more the conditions of supply than the demand for deposit services.

A large number of depositors (78 percent) reported to have had loans at least once from either formal or informal lenders. Only 45 percent, however, had received loans during 1985. The BA had granted loans to three-quarters of those who had had access to credit. Moreover, it had been the exclusive lender for one-half of those with a borrowing experience. The other major lenders were friends and relatives. The advantage of the BA in attracting the deposits of farmers has been in part associated with its lending power. The BA has been successful in marketing its liabilities among its borrowing clientele. Indeed, 59 percent of the depositors received a loan at least once from the BA. Had the bank failed to convince its traditional clientele about the advantages of its new deposit facilities, attempts to carry on with the RSMP would have been futile. The outstanding result, however, was that 41 percent of the depositors represented a genuine new clientele for the BA. These nonborrowing depositors are mainly urban and work outside agriculture, while the BA is only allowed to lend for agricultural purposes. In this case, therefore, deposit mobilization has reversed the flows of funds between agriculture and the rest of the economy. In the rural areas, on the other hand, most depositors are farmers and most have been BA borrowers. That 23 percent of rural depositors have never been BA borrowers, however, is also remarkable. These differences suggested that the two clienteles may respond to different sets of incentives.

The large proportion of nonborrowing depositors raises the question of what motivates them to keep their accounts with the BA. Interest rates were certainly not an important reason, given their low level and the lack of concern among depositors about these rates. The majority (75 percent) indicated, however, that they would deposit more if the interest rates earned were higher. On the other hand, the BA was the first intermediary ever to offer deposit services in four of the seven regions (Comendador, Samana, El Ceybo, and Rio San Juan). Lower transaction costs would be a strong incentive. A large proportion (55 percent) of the rural depositors indicated that they had deposited money in a bank for the first time in their lives. Another 10 percent of the depositors returned to the formal financial system when they opened their BA account. For the majority of the depositors, their savings account with the BA was their only financial asset in addition to cash.

The opportunity to get a loan, in turn, would be appealing only to depositors linked to the agricultural sector. Only 143 of the 324 depositors received loans from the BA during the mobilization campaign (1984-1986). The vast majority of the depositors living in urban areas where the BA was the only intermediary mentioned proximity as the main reason for their choice. Among these, only 14 percent received BA loans during the mobilization campaign. In the rural areas where there was no other intermediary, proximity, followed by the expectation of a loan, were the

main reasons cited. On the other hand, in those localities where the BA faced competition from other intermediaries, rural depositors were mostly attracted by loan expectations. Finally, in urban centers where the BA faced competition, the promotional activities of the bank were most influential. Substantiating these results, the bulk of the urban clients (79 percent) claimed that they were not planning to apply for a loan during 1987. In the rural areas, on the other hand, over one-half of the depositors where planning to request a loan within a year. Even though the interest rates charged by the BA have always been below those charged by other intermediaries, only 55 percent of its clients considered them to be low or reasonable. Moreover, a large proportion of the borrowers did not know the level of the interest rates paid. The implications of this symmetry are evident; ignorance about deposit and loan rates reflects both their low and rigid levels and the more important impact of transaction costs on the net returns of depositors or the total cost of funds for borrowers. Finally, incentives in the form of periodical raffles were of little importance.

The funds for the initial deposit came mostly (60 percent of the cases) from regular sources of current income, such as wages, business earnings, or harvest proceeds, as reported in Table 5. Less than 10 percent of the depositors used their hoarding of cash for the initial deposit. BA accounts have been very liquid, since the bank has not set limits on the number of deposits or withdrawals allowed and it has not required a minimum amount per transaction. The proportion of the cases when the funds came from a deposit in another bank was minimal (less than five percent). As was the case in the Peru experiment, the growth of deposits did not result from disintermediation in other institutions (Burkett). Indeed, a large proportion of the depositors did not have any bank accounts before. This result suggests that with the RSMP a net increase in the holdings of financial assets in the rural areas has actually taken place.

A significant finding was that the decision to deposit had refrained current consumption. Not only was current income the main source of the funds, rather than asset transformations, but 59 percent of the depositors indicated that "living expenses" would have been the alternative use of the funds deposited, had there not been such an opportunity, as shown in Table 5. The RSMP, therefore, contributed to additional financial deepening in the rural areas and to higher savings ratios.

The RSMP has attracted depositors from hundreds of small villages throughout the Dominican Republic. Over one-half of the depositors lived more than three miles away from the BA branch and one-fourth of them lived at least 10 miles away. Long distances and poor road conditions increased the depositors' transaction costs. These costs are likely to reduce the frequency of transactions. As shown in Table 6, the costs of a deposit tran-

saction varied within a wide range for both borrowing and nonborrowing depositors. One-half of the non-borrowing depositors incurred in transaction costs equal to or less than DR$ 2 per visit to the branch. Most of these depositors live in urban areas. On the other hand, 85 percent of the borrowing depositors incurred in transaction costs of over DR$ 5 per visit. Most of them live in the rural areas. These high costs must be linked to the low degree of activity of their accounts. Since income had a similar distribution for borrowing and non-borrowing depositors, these differences in transaction costs may explain the different average balance of their accounts. The importance of these costs cannot be exaggerated. For an account with an average balance of DR$ 100, not uncommon, a single trip to the branch with a cost of DR$ 6 would be enough to wipe out the annual interest earnings of the depositor. Not surprisingly, therefore, the smaller accounts showed less activity (number of deposits and withdrawals per period). When the number of transactions per account was normalized, in order to take into consideration the different age of the accounts, as the level of the transaction costs increased, the number of transactions declined, as shown in Table 7.

In summary, the RSMP reduced the transaction costs of depositors in different ways. This claim is indisputable for depositors in towns where no other intermediaries exist. The BA, in addition, tracked down potential depositors right at the villages where they live. Reductions in transaction costs were also enjoyed by those clients who are borrowers at the same time. They can now take care of both borrowing and depositing transactions in one single visit to the branch. This generates economies of scope for the client.

Model Estimation

The explanation of household deposits by Vasquez and by Guerrero was organized according to the framework developed by Wai, after appropriate adjustments. Wai considered that "the decision to save by each unit in the economy is influenced by the ability, the willingness, and the opportunity to do so." Income, dependency ratios, and wealth levels affect the ability to save. Interest rates, stage in the life cycle, and cultural factors, such as social position, influence the willingness to save. Opportunity depends on the extent of financial intermediation available and on the marginal efficiency of capital. Although utilized to explain savings behavior, this framework can be adjusted to explain depositing behavior as well.

Table 8 compares the differences between the variables selected for the two models. Differences between the two are related to the model specification, the proxies chosen and the way in which some variables were measured, as well as the estimation technique. In Vasquez, the dependent variable was the monthly average amount deposited (flow) with all regulated financial in-

termediaries. Because the dependent variable could only take the value of zero (non-depositors) or greater than zero (depositors), the use of a truncated model (the Tobit technique), that specifically takes into consideration this factor, was required (Amemiya, Thraen). In Guerrero, the dependent variable was the average deposit balance held in the BA account, from its opening date up to May, 1986. Account balances were averaged taking into consideration the length of time each balance was held in the account as weights. This variable was computed by using BA records. Guerrero, on the other hand, estimated a single-equation log-linear OLS regression model.

The model estimated by Vasquez was derived from the following demand function for deposits:

$$D = D(Y, N, K, i, E, J, F) \qquad (1)$$

where D is the monthly household deposit (flow), Y is the monthly household income, N is the dependency ratio, K is an index of the quality of the house, used as a proxy for wealth, i is the interest rate earned by the depositor, E is the level of education, J is an index of the level of the occupation of the head of the household, and F is an index of the type and number of financial intermediaries in the town. In Rio San Juan, the only formal intermediary offering deposit services was Banco Agricola and only for a few weeks, while in La Vega and Bani there were commercial banks, mortgage banks, and savings and loan associations in the urban centers.

The monthly deposit was less than DR$ 100 in 72 percent of the cases and above DR$ 200 in 10 percent of the cases. Monthly income was less than DR$ 200 for one third of the households and between DR$ 200 and DR$ 400 for another third. Interest rates earned ranged between 4.5 and 11.5 percent (uniform inflation across depositors was assumed). Differences in interest rates reflected differences in household access to instruments and institutions. Table 8 indicates the expected signs for the coefficients of the independent variables. Income, interest rates, and the extent of the financial infrastructure were expected to influence deposits directly; the dependency ratio was expected to be inversely related to deposits. In the cases of wealth, education, and occupation, a positive sign was also expected but only as a consequence of the net result of diverging forces. there were also reasons to expect a more ambiguous sign.

Four models were estimated, one for the pooled data and one for each of the three strata: urban, semirural, and rural. Dummy variables were included to test for differences in the slope of the income variable and the intercept, across strata and locations. The results of the models are presented in Tables 10 through 13. A log likelihood ratio test was performed for each model to test for the goodness of fit and the results are also

reported in the tables. Since the data were corrected for heteroskedasticity, the inverse of income was used, and this explains the negative sign for the income coefficient.

Income was a highly significant variable, with the correct sign. For the pooled model, the inverse-of-income-elasticity of the demand for deposits was - 2.1. For the urban households, this elasticity was - 0.9, for the semirural areas it was - 3.4, and for the rural areas it was - 3.9. Deposits are more income elastic, therefore, in the rural than in the urban areas. The coefficient for the interest rates was also significant and had the correct sign. The interest-elasticity of the demand for deposits was 1.6 for the pooled data, 1.4 for the urban areas, 1.9 for the semirural, and 1.7 for the rural households. Again, deposits are more interest elastic in the rural than in the urban areas. This may reflect both the different impact of transaction costs on the net rewards to depositors and the reduced availability of investment alternatives in the rural areas.

The lack of significance of the proxy for wealth may indicate conflicting influences on the demand for deposits. On the one hand, wealth expands the aggregate constraint on the portfolio of assets and would thus have a positive impact. The holding of other assets, however, will reflect a negative impact if these assets are substitutes for deposits. Houses and consumer durables, included in the proxy for wealth, may have represented inflation hedges used as substitute stores of value. Dependency ratios, education, and occupation were not significant in general. Higher education may mean a greater awareness about the advantages and disadvantages of holding financial assets. It also implies information about competing assets that may be more attractive in an inflationary environment. The proxy for financial intermediation was significant, but not with the expected sign. This may reflect the fact that in those localities where the number and variety of regulated intermediaries is greater, particularly the urban centers, the variety and number of nonregulated intermediaries is also greater. As a result, depositors have an attractive alternative and deposit less in regulated institutions. While regulated intermediaries paid at most 14 percent per year, nonregulated institutions paid at least 24 percent per year.

The model estimated by Guerrero was derived from the following demand function for deposits:

$$D = D(Y, K, P, L, E, F, T) \qquad (2)$$

where D is the average balance in the BA account, Y is the household's current income, K is a proxy for wealth, P is the regional rate of inflation, L is a proxy for loan expectations, E is the level of education, F is the number of regulated intermediaries in town, and T is the depositor's transaction costs, measured di-

rectly from survey data. Table 9 shows the values for the variables selected. The average income of borrower and nonborrower depositors was similar. Since their account balances were more different, this may indicate a different behavior. The average income of DR$ 567 was similar to the average balance of DR$ 574 for the whole sample. This suggests that these depositors keep a balance equivalent to about one-month of their income, a comparatively high proportion. Wealth was measured as the estimated value of selected assets, at market prices, namely land, houses, trucks, cars, and motorcycles. The positive wealth and complementarity effects were expected to dominate the substitution effects. Since BA paid the same interest to all depositors, real returns varied with differences in inflation rates across regions. The average inflation rate was computed from monthly indices for July, 1984 through May, 1986. Transaction costs were measured as the sum of travel and food expenses and the opportunity cost of the time spent in conducting deposit transactions.

The presence of other financial institutions in the same town may lead to an all-or-nothing decision to deposit in the BA or it may lead to smaller deposits in several banks, when there are incentives for holding multiple deposits. For nonborrowers, the all-or-nothing decision may be typical, since without the incentive of a greater probability to get a loan, these depositors will be more influenced by the characteristics of alternative assets. Borrowers, on the other hand, may have all of their deposits at the BA or they may have some funds at the BA, to establish a claim on a loan, and other funds elsewhere, in order to earn the higher returns. The greater the level of competition, the higher the opportunity cost of keeping the funds at the BA. The sign expected for the coefficient of the variable F is negative, therefore. The significance of loan expectations was measured by a dummy variable that took the value of 1 when the depositor was also a BA borrower and 0 otherwise. An alternative procedure was to split the data set into two groups, borrower-depositor and nonborrower-depositors and to run separate regressions. A Chow test was used to verify if the differences between the resulting elasticities were statistically significant.

Three single-equation regressions were estimated. One was a pooled model, another was run for those depositors who had received loans from the BA after June, 1984 (the borrower-depositor model), and another was run for depositors who had not obtained loans before that date or had never been borrowers of the BA (the nonborrower-depositor model). The Chow test was used to validate the procedure of dividing the depositors according to this criterion. The test rejected the null hypothesis about similarity between the regression coefficients. The differences between these two classes of depositors are statistically significant. Table 14 shows the results from these regressions. The Park-Glejser test did not reveal any heteroskedasticity.

As expected, income had a positive impact on the average account balance and the coefficient was highly significant. Borrower-depositors exhibited a higher income-elasticity of the demand for deposits than the nonborrowers. This is consistent with Vasquez' finding of a higher income-elasticity in the rural areas. Wealth had a positive impact on deposits, but the coefficient was significant only for the borrower-depositor model. This suggests a stronger substitution effect in the urban areas. The coefficient for inflation was not significant. This may suggest that other incentives, in particular low transaction costs, were more important in defining the net return on deposits. Moreover, regional variations in inflation were not sufficiently large to yield interesting results.

The coefficient for competition in the market for deposits was significant for the pooled and the nonborrower-depositor models. Higher levels of competition were correlated with lower average account balances. This was expected, for the nonborrowers, since the other intermediaries offered almost perfect substitutes for the BA savings accounts. Competition from nonregulated intermediaries was also intense. The level of competition was not significant for the borrower-depositor model, however. The complete bank-customer relationship with the BA was appealing, although the BA deposits, per se, might not have been as competitive. Other intermediaries may not be willing to supply the loan services that BA offers is traditional clientele. Once a client comes to the BA for his loans, it becomes cheaper to also keep his deposit with this bank and take advantage of the implicit economies of scope. The loan expectations dummy variable was significant for the pooled model. The negative sign indicated that borrowers had a smaller account than nonborrowers.

The coefficient for transaction costs had the expected negative sign and was highly significant. The demand for deposits of the borrowers showed a higher transaction-cost-elasticity than that of the nonborrowers, as expected, since the former tend to leave further away from the branch, in the rural areas. While the average transaction costs for the borrower-depositors was DR$ 10.41 per visit, this cost was DR$ 5.48 for the non-borrowers. Lower transaction costs seem to have been the driving force behind the success of the RSMP.

## Notes

Claudio Gonzalez-Vega is Professor of Agricultural Economics and of Economics at the Ohio State University; Jose A. Guerrero graduated from this university and works in Santo Domingo; Archibaldo Vasquez is also a graduate of the Rural Financial Markets Program at the Ohio State University and works for Chase Manhattan Bank; and Cameron Thraen is an Associate Professor of Agricultural Economics at the Ohio State University. This research was financed by the U. S. Agency for International Development.

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Table 1. Dominican Republic: Banco Agricola. Deposit Mobilization. 1984-1987.

| Months | Savings Accounts | | Term Deposits | Financ. Cert. | Total |
|---|---|---|---|---|---|
| | Number | Amount | Amount | Amount | Amount |
| July 84 | 349 | 120,187 | 30,541 | 0 | 150,728 |
| August | 1,131 | 299,123 | 108,906 | 0 | 408,029 |
| September | 1,408 | 294,393 | 132,283 | 0 | 426,676 |
| October | 2,628 | 499,451 | 537,192 | 0 | 1,036,643 |
| November | 4,060 | 869,166 | 931,284 | 0 | 1,800,450 |
| December | 5,213 | 1,099,844 | 1,833,320 | 0 | 2,933,164 |
| January 85 | 5,963 | 1,271,995 | 1,905,363 | 0 | 3,177,358 |
| February | 6,410 | 1,346,847 | 2,390,631 | 0 | 3,737,478 |
| March | 7,258 | 1,575,136 | 2,453,538 | 0 | 4,028,674 |
| April | 9,024 | 1,817,952 | 2,474,677 | 0 | 4,292,629 |
| May | 10,679 | 2,040,689 | 2,385,382 | 0 | 4,426,071 |
| June | 11,987 | 2,371,893 | 2,612,471 | 0 | 4,984,364 |
| July | 15,892 | 3,122,743 | 2,680,008 | 0 | 5,802,751 |
| August | 17,322 | 3,373,669 | 2,931,622 | 0 | 6,305,291 |
| September | 18,876 | 3,740,042 | 3,138,605 | 0 | 6,878,647 |
| October | 20,757 | 3,986,285 | 2,965,235 | 0 | 6,951,520 |
| November | 22,300 | 4,094,865 | 2,981,256 | 0 | 7,076,121 |
| December | 23,703 | 4,230,261 | 2,831,293 | 0 | 7,061,554 |
| January 86 | 24,938 | 4,464,158 | 2,821,053 | 0 | 7,285,211 |
| February | 26,265 | 4,885,483 | 2,491,968 | 0 | 7,377,451 |
| March | 27,833 | 5,268,431 | 2,487,450 | 0 | 7,755,881 |
| April | 29,721 | 5,739,715 | 2,211,692 | 0 | 7,951,407 |
| May | 30,984 | 6,058,229 | 2,240,384 | 0 | 8,298,613 |
| June | 32,035 | 6,091,431 | 2,344,996 | 0 | 8,436,427 |
| July | 33,195 | 6,240,231 | 2,337,642 | 0 | 8,577,873 |
| August | 34,064 | 6,171,041 | 2,255,206 | 0 | 8,426,247 |
| September | 35,275 | 6,331,413 | 2,308,052 | 0 | 8,639,465 |
| October | 36,835 | 7,008,207 | 2,453,952 | 0 | 9,462,159 |
| November | 38,137 | 7,759,823 | 2,603,346 | 0 | 10,363,170 |
| December | 39,574 | 7,988,120 | 2,861,058 | 0 | 10,849,180 |
| January 87 | 40,448 | 8,260,020 | 2,590,661 | 465,000 | 11,315,680 |
| February | 42,027 | 8,612,886 | 2,521,630 | 649,928 | 11,784,440 |
| March | 44,898 | 9,078,734 | 2,607,986 | 883,041 | 12,569,760 |
| April | 47,920 | 9,656,618 | 2,542,664 | 1,151,198 | 13,350,480 |
| May | 52,050 | 10,854,100 | 2,594,947 | 1,671,193 | 15,120,240 |
| June | 56,417 | 11,550,720 | 2,019,040 | 1,899,367 | 15,469,130 |
| July | 59,109 | 12,667,215 | 7,885,857 | 1,921,074 | 22,474,146 |
| August | 62,057 | 12,421,659 | 8,197,640 | 1,889,445 | 22,508,744 |
| September | 64,231 | 12,954,306 | 7,665,500 | 1,928,563 | 22,548,369 |
| October | 66,570 | 14,032,903 | 5,907,603 | 1,977,107 | 21,917,613 |
| November | 68,485 | 14,066,906 | 4,665,829 | 1,932,779 | 20,655,514 |

Source: Guerrero.

Table 2. Dominican Republic: Banco Agricola. Distribution of Savings Accounts by Branch. 1986-1987.

| Branches | May 1986 | | | | June 1987 | | | |
|---|---|---|---|---|---|---|---|---|
| | Number | Amount | Percentages | | Number | Amount | Percentages | |
| Puerto Plata | 2,203 | 492,331 | 7.1 | 8.1 | 3,431 | 977,552 | 6.1 | 8.5 |
| Comendador | 1,318 | 404,344 | 4.3 | 6.7 | 2,156 | 508,543 | 3.8 | 4.4 |
| La Vega | 2,523 | 385,951 | 8.1 | 6.4 | 3,497 | 591,513 | 6.2 | 5.1 |
| Rio San Juan | 1,507 | 372,367 | 4.9 | 6.1 | 1,997 | 521,027 | 3.5 | 4.5 |
| Monte Plata | 1,367 | 339,664 | 4.4 | 5.6 | 3,620 | 912,786 | 6.4 | 7.9 |
| El Seibo | 916 | 306,843 | 3.0 | 5.1 | 1,553 | 621,762 | 2.8 | 5.4 |
| San Jose D. Matas | 1,480 | 298,804 | 4.8 | 4.9 | 1,734 | 321,358 | 3.1 | 2.8 |
| San Juan | 1,668 | 260,447 | 5.4 | 4.3 | 3,423 | 888,945 | 6.1 | 7.7 |
| Samana | 1,168 | 256,389 | 3.8 | 4.2 | 2,223 | 650,008 | 3.9 | 5.6 |
| Higuey | 1,064 | 236,492 | 3.4 | 3.9 | 1,379 | 333,625 | 2.4 | 2.9 |
| Arenoso | 882 | 212,105 | 2.8 | 3.5 | 1,177 | 265,890 | 2.1 | 2.3 |
| Azua | 1,017 | 212,885 | 3.3 | 3.5 | 2,089 | 359,737 | 3.7 | 3.1 |
| Villa Riva | 590 | 208,799 | 1.9 | 3.4 | 878 | 292,747 | 1.6 | 2.5 |
| Salcedo | 884 | 207,714 | 2.9 | 3.4 | 1,801 | 334,906 | 3.2 | 2.9 |
| Moca | 452 | 200,156 | 1.5 | 3.3 | 1,861 | 301,423 | 3.3 | 2.6 |
| Santo Domingo | 926 | 193,836 | 3.0 | 3.2 | 1,389 | 210,071 | 2.5 | 1.8 |
| Bani | 1,292 | 186,540 | 4.2 | 3.1 | 1,841 | 459,339 | 3.3 | 4.0 |
| Valverde | 751 | 162,597 | 2.4 | 2.7 | 3,134 | 336,103 | 5.6 | 2.9 |
| Santiago Rodriguez | 652 | 154,417 | 2.1 | 2.5 | 1,784 | 421,695 | 3.2 | 3.7 |
| Santiago | 1,026 | 132,588 | 3.3 | 2.2 | 1,753 | 261,010 | 3.1 | 2.3 |
| Montecristi | 561 | 121,751 | 1.8 | 2.0 | 995 | 265,298 | 1.8 | 2.3 |
| Bonao | 1,044 | 113,673 | 3.4 | 1.9 | 1,288 | 236,286 | 2.3 | 2.0 |
| Cotui | 1,222 | 114,038 | 3.9 | 1.9 | 1,646 | 122,329 | 2.9 | 1.1 |
| San Jose Ocoa | 1,118 | 90,200 | 3.6 | 1.5 | 1,716 | 150,450 | 3.0 | 1.3 |
| Barahona | 627 | 93,611 | 2.0 | 1.5 | 1,640 | 304,010 | 2.9 | 2.6 |
| Hato Mayor | 453 | 89,651 | 1.5 | 1.5 | 1,032 | 212,587 | 1.8 | 1.8 |
| Dajabon | 772 | 78,118 | 2.5 | 1.3 | 1,350 | 293,404 | 2.4 | 2.5 |
| Nagua | 731 | 74,323 | 2.4 | 1.2 | 1,554 | 159,472 | 2.8 | 1.4 |
| San Cristobal | 770 | 57,595 | 2.5 | 1.0 | 1,166 | 76,649 | 2.1 | 0.7 |
| SF Macoris | 0 | 0 | 0.0 | 0.0 | 616 | 76,440 | 1.1 | 0.7 |
| Constanza | 0 | 0 | 0.0 | 0.0 | 694 | 83,753 | 1.2 | 0.7 |
| Total | 30,984 | 6,058,229 | 100.0 | 100.0 | 56,417 | 11,550,720 | 100.0 | 100.0 |

Source: Guerrero.

Table 3. Dominican Republic: Characteristics of Depositing and non-Depositing Households. 1984.

| | Depositors | | Non-Depositors | | Total | |
|---|---|---|---|---|---|---|
| | Number | % a/ | Number | % a/ | Number | % b/ |
| **Location** | | | | | | |
| Rio San Juan | 38 | 31 | 83 | 69 | 121 | 22 |
| La Vega | 122 | 49 | 127 | 51 | 249 | 45 |
| Bani | 82 | 45 | 99 | 55 | 181 | 33 |
| Total | 242 | 44 | 309 | 56 | 551 | 100 |
| **Stratum** | | | | | | |
| Urban | 115 | 53 | 103 | 47 | 218 | 40 |
| Semirural | 54 | 40 | 80 | 60 | 134 | 24 |
| Rural | 73 | 37 | 126 | 63 | 199 | 36 |
| **Quality of the House** | | | | | | |
| Very Bad | 2 | 5 | 39 | 95 | 41 | 7 |
| Bad | 36 | 20 | 121 | 80 | 457 | 83 |
| Regular | 123 | 54 | 106 | 46 | 229 | 42 |
| Good | 59 | 66 | 30 | 64 | 89 | 16 |
| Very Good | 19 | 70 | 8 | 30 | 27 | 5 |
| **Marital Status** | | | | | | |
| Single | 13 | 50 | 13 | 50 | 26 | 5 |
| Married | 173 | 49 | 179 | 51 | 352 | 64 |
| Cohabitation | 40 | 32 | 84 | 68 | 124 | 23 |
| Divorced | 11 | 42 | 15 | 58 | 26 | 5 |
| Widowed | 5 | 22 | 18 | 78 | 23 | 4 |
| **Sex** | | | | | | |
| Male | 220 | 44 | 278 | 56 | 498 | 90 |
| Female | 22 | 42 | 31 | 58 | 53 | 10 |
| **Age** | | | | | | |
| Less than 25 years | 10 | 63 | 6 | 37 | 16 | 3 |
| 25 to 34 | 41 | 48 | 44 | 52 | 85 | 15 |
| 35 to 44 | 59 | 52 | 54 | 48 | 113 | 21 |
| 45 to 54 | 52 | 36 | 93 | 64 | 145 | 26 |
| 55 to 64 | 42 | 46 | 50 | 54 | 92 | 17 |
| 65 years or more | 30 | 44 | 39 | 56 | 69 | 13 |
| **Economic Activity** | | | | | | |
| Agriculture | 68 | 33 | 136 | 67 | 204 | 37 |
| Livestock | 7 | 47 | 8 | 53 | 15 | 3 |
| Commerce | 76 | 52 | 71 | 48 | 147 | 27 |
| Industry | 12 | 60 | 8 | 40 | 20 | 4 |
| Construction | 7 | 28 | 18 | 72 | 25 | 5 |
| Services | 39 | 58 | 28 | 42 | 67 | 12 |
| Public Sector | 27 | 59 | 19 | 41 | 46 | 8 |

Table 3 (Cont.)

| | Depositors | | Non-Depositors | | Total | |
|---|---|---|---|---|---|---|
| | Number | % a/ | Number | % a/ | Number | % b/ |
| **Labor Situation** | | | | | | |
| Wage earner | 66 | 37 | 114 | 63 | 180 | 33 |
| Own Business | 169 | 50 | 168 | 50 | 337 | 61 |
| **Type of Occupation** | | | | | | |
| Worker | 10 | 13 | 69 | 87 | 79 | 14 |
| Other | 3 | 27 | 8 | 73 | 11 | 2 |
| Non-qualified employee | 28 | 51 | 27 | 49 | 55 | 10 |
| Technical | 16 | 46 | 19 | 54 | 35 | 6 |
| Paraprofessional | 5 | 50 | 5 | 50 | 10 | 2 |
| Owner | 140 | 50 | 141 | 50 | 281 | 51 |
| Manager | 11 | 61 | 7 | 39 | 18 | 3 |
| Professional | 21 | 84 | 4 | 16 | 25 | 5 |
| **Educational Level** | | | | | | |
| Illiterate | 24 | 22 | 85 | 78 | 109 | 20 |
| Basic Education | 105 | 41 | 150 | 59 | 255 | 46 |
| Intermediate Education | 32 | 51 | 31 | 49 | 63 | 11 |
| High School | 33 | 66 | 17 | 34 | 50 | 9 |
| Technical | 15 | 60 | 10 | 40 | 25 | 5 |
| College or Higher | 32 | 73 | 12 | 27 | 44 | 8 |
| **Dwelling Unit Is:** | | | | | | |
| Owned | 196 | 42 | 268 | 58 | 464 | 84 |
| Rented | 42 | 58 | 30 | 42 | 72 | 13 |
| Gratis | 4 | 29 | 10 | 71 | 14 | 3 |
| **Income** | | | | | | |
| Up to $200 | 16 | 9 | 159 | 91 | 175 | 32 |
| $201-400 | 79 | 46 | 94 | 54 | 173 | 31 |
| $401-600 | 37 | 63 | 22 | 37 | 59 | 11 |
| $601-800 | 48 | 84 | 9 | 16 | 57 | 10 |
| $801-1000 | 24 | 77 | 7 | 23 | 31 | 6 |
| $1001-1200 | 17 | 100 | ... | ... | 17 | 3 |
| $1201-1400 | 8 | 100 | ... | ... | 8 | 1 |
| $1401-1600 | 3 | 75 | 1 | 25 | 4 | 1 |
| $1600 and more | 2 | 50 | 2 | 50 | 4 | 1 |

a/ As a percentage of households in each category.
b/ As a percentage of total households.
Source: Vasquez.

Table 4. Dominican Republic: Characteristics of Banco Agricola Depositors. Sample Data. 1986.

| Characteristics | Number | | | Row Percent | | Column percent | | |
|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Urban | Rural | Total |
| **Branch** | | | | | | | | |
| La Vega/Jarabacoa | 13 | 71 | 84 | 15.5 | 84.5 | 10.4 | 37.4 | 26.7 |
| San Juan | 13 | 35 | 48 | 27.1 | 72.9 | 10.4 | 18.4 | 15.2 |
| Comendador | 13 | 20 | 33 | 39.4 | 60.6 | 10.4 | 10.5 | 10.5 |
| Bani | 7 | 31 | 38 | 18.4 | 81.6 | 5.6 | 16.3 | 12.1 |
| Rio San Juan | 30 | 9 | 39 | 76.9 | 23.1 | 24.0 | 4.7 | 12.4 |
| Samana | 21 | 20 | 41 | 51.2 | 48.8 | 16.8 | 10.5 | 13.0 |
| Miches | 28 | 4 | 32 | 87.5 | 12.5 | 22.4 | 2.1 | 10.2 |
| **Sex** | | | | | | | | |
| Men | 71 | 155 | 226 | 31.4 | 68.6 | 56.8 | 81.6 | 71.7 |
| Women | 54 | 35 | 89 | 60.7 | 39.3 | 43.2 | 18.4 | 28.3 |
| **Marital status** | | | | | | | | |
| Single | 20 | 17 | 37 | 54.1 | 45.9 | 16.0 | 8.9 | 11.7 |
| Married | 74 | 113 | 187 | 39.6 | 60.4 | 59.2 | 59.5 | 59.4 |
| Divorced | 8 | 3 | 11 | 72.7 | 27.3 | 6.4 | 1.6 | 3.5 |
| Cohabiting | 19 | 52 | 71 | 26.8 | 73.2 | 15.2 | 27.4 | 22.5 |
| Widow | 4 | 5 | 9 | 44.4 | 55.6 | 3.2 | 2.6 | 2.9 |
| **Age** | | | | | | | | |
| Below 25 | 15 | 9 | 24 | 62.5 | 37.5 | 12.0 | 4.7 | 7.6 |
| 26 - 35 | 34 | 34 | 68 | 50.0 | 50.0 | 27.2 | 17.9 | 21.6 |
| 36 - 45 | 31 | 50 | 81 | 38.3 | 61.7 | 24.8 | 26.3 | 25.7 |
| More than 45 | 45 | 97 | 142 | 31.7 | 68.3 | 36.0 | 51.1 | 45.1 |
| **Family size** | | | | | | | | |
| Up to 3 members | 33 | 31 | 64 | 51.6 | 48.4 | 26.4 | 16.3 | 20.3 |
| 4 - 7 | 71 | 103 | 174 | 40.8 | 59.2 | 56.8 | 54.2 | 55.2 |
| 8- 10 | 18 | 39 | 57 | 31.6 | 68.4 | 14.4 | 20.5 | 18.1 |
| 11 up to 17 | 3 | 17 | 20 | 15.0 | 85.0 | 2.4 | 8.9 | 6.3 |
| **Can Read** | | | | | | | | |
| Yes | 116 | 151 | 267 | 43.4 | 56.6 | 92.8 | 79.5 | 84.8 |
| No | 9 | 39 | 48 | 18.8 | 81.3 | 7.2 | 20.5 | 15.2 |

Table 4 (cont.)

| Characteristics | Number | | | Row Percent | | Column Percent | | |
|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Urban | Rural | Total |
| **Education** | | | | | | | | |
| Illiterate or none | 7 | 40 | 47 | 14.9 | 85.1 | 5.6 | 21.1 | 14.9 |
| Basic education | 39 | 110 | 149 | 26.2 | 73.8 | 31.2 | 57.9 | 47.3 |
| Intermediate | 19 | 20 | 39 | 48.7 | 51.3 | 15.2 | 10.5 | 12.4 |
| High School | 14 | 4 | 18 | 77.8 | 22.2 | 11.2 | 2.1 | 5.7 |
| Technical level | 37 | 11 | 48 | 77.1 | 22.9 | 29.6 | 5.8 | 15.2 |
| College or higher | 9 | 5 | 14 | 64.3 | 35.7 | 7.2 | 2.6 | 4.4 |
| **Who is head of household** | | | | | | | | |
| Interviewee | 84 | 147 | 231 | 36.4 | 63.6 | 67.2 | 77.4 | 73.3 |
| Husband/wife | 16 | 19 | 35 | 45.7 | 54.3 | 12.8 | 10.0 | 11.1 |
| Parent | 7 | 4 | 11 | 63.6 | 36.4 | 5.6 | 2.1 | 3.5 |
| Son | 2 | 5 | 7 | 28.6 | 71.4 | 1.6 | 2.6 | 2.2 |
| Other relative | 3 | 0 | 3 | 100.0 | 0.0 | 2.4 | 0.0 | 1.0 |
| Both (husband/wife) | 13 | 15 | 28 | 46.4 | 53.6 | 10.4 | 7.9 | 8.9 |
| **Occupation** | | | | | | | | |
| Agriculture | 31 | 162 | 193 | 16.1 | 83.9 | 24.8 | 85.3 | 61.3 |
| Livestock | 5 | 0 | 5 | 100.0 | 0.0 | 4.0 | 0.0 | 1.6 |
| Commerce | 27 | 6 | 33 | 81.8 | 18.2 | 21.6 | 3.2 | 10.5 |
| Profession | 5 | 0 | 5 | 100.0 | 0.0 | 4.0 | 0.0 | 1.6 |
| Public employee | 20 | 5 | 25 | 80.0 | 20.0 | 16.0 | 2.6 | 7.9 |
| Private employee | 9 | 0 | 9 | 100.0 | 0.0 | 7.2 | 0.0 | 2.9 |
| Housewife/retire | 12 | 10 | 22 | 54.5 | 45.5 | 9.6 | 5.3 | 7.0 |
| Craftsmen | 10 | 3 | 13 | 76.9 | 23.1 | 8.0 | 1.6 | 4.1 |
| Others | 6 | 4 | 10 | 60.0 | 40.0 | 4.8 | 2.1 | 3.2 |
| **Loans from Banco Agricola at least once** | | | | | | | | |
| Yes | 40 | 147 | 187 | 21.4 | 78.6 | 32.0 | 77.4 | 59.4 |
| No | 85 | 43 | 128 | 66.4 | 33.6 | 68.0 | 22.6 | 40.6 |
| **Landowners** | 42 | 135 | 177 | 23.7 | 76.3 | 33.6 | 71.1 | 56.2 |
| **Know interest rate on savings accounts** | | | | | | | | |
| Yes | 40 | 47 | 87 | 46.0 | 54.0 | 32.0 | 24.7 | 27.6 |
| No | 85 | 143 | 228 | 37.3 | 62.7 | 68.0 | 75.3 | 72.4 |

Source: Guerrero.

Table 5. Dominican Republic: Alternative Uses of the Funds for the Initial Deposit, by Source. Survey Data. 1986.

| | Source of the Initial Deposit | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Current Income | Loan | Kept at Home | Assets | Deposits | Other | Total | % |
| **Alternative Use** | | | | | | | | |
| Living Expenses | 119 | 12 | 19 | 12 | 11 | 12 | 185 | 58.7 |
| Investments | 36 | 25 | 5 | 4 | 1 | 1 | 72 | 22.9 |
| Keep at Home | 7 | 1 | 1 | 0 | 0 | 0 | 9 | 2.9 |
| Deposit in other Bank | 5 | 2 | 0 | 1 | 0 | 3 | 11 | 3.5 |
| Built/Repair House | 7 | 1 | 1 | 1 | 0 | 1 | 11 | 3.5 |
| Education | 4 | 1 | 0 | 1 | 0 | 2 | 8 | 2.5 |
| Other | 10 | 2 | 1 | 1 | 3 | 2 | 19 | 6.0 |
| Total | 188 | 44 | 27 | 20 | 15 | 21 | 315 | 100.0 |
| % | 59.7 | 14.0 | 8.6 | 6.3 | 4.8 | 6.7 | 100.0 | |

Source: Guerrero.

Table 6. Dominican Republic: Depositor Transaction Costs per Visit to the Branch, by type of Depositor. Survey Data. 1986.

| Cost per visit | Non-Borrower | | | Borrower | | |
|---|---|---|---|---|---|---|
| | Number | Ave. Cost | Median Balance | Number | Ave. Cost | Median Balance |
| Up to 1 | 38 | 0.53 | 444 | 9 | 0.54 | 121 |
| 1.1 - 2 | 27 | 1.61 | 618 | 9 | 1.51 | 30 |
| 2.1 - 3 | 11 | 2.40 | 522 | 7 | 2.47 | 30 |
| 3.1 - 4 | 11 | 3.45 | 217 | 7 | 3.59 | 196 |
| 4.1 - 5 | 6 | 4.71 | 394 | 6 | 4.32 | 60 |
| 5.1 - 10 | 16 | 7.31 | 62 | 42 | 6.92 | 21 |
| 10.1 - 20 | 14 | 14.21 | 50 | 31 | 13.7 | 17 |
| 20.1 - 40 | 6 | 20.28 | 15 | 8 | 27.54 | 52 |
| 40.1 - 90 | 1 | 64.89 | 100 | 4 | 64.80 | 36 |
| Total | 130 | 5.48 | 253 | 123 | 10.41 | 30 |

Notes: Cost per visit and median account balance in DR$. Average cost as a proportion of the account balance.
Source: Guerrero.

Table 7. Dominican Republic: Average Number of Visits per Depositor, According to the Age of the Account and the Transaction Cost per Visit. Survey Data. 1986.

| Months | Up to | | | | | over 20 | All |
|---|---|---|---|---|---|---|---|
| | 1 | 3 | 5 | 10 | 20 | | |
| 1 | 0 | 2 | 1 | 10 | 2 | 0 | 15 |
| 2 | 3 | 4 | 2 | 4 | 2 | 2 | 17 |
| 3 | 1 | 1 | 2 | 2 | 2 | 0 | 8 |
| 4 | 2 | 0 | 0 | 4 | 2 | 1 | 9 |
| 5 | 2 | 2 | 1 | 1 | 0 | 0 | 6 |
| 6 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| 7 | 1 | 2 | 1 | 0 | 1 | 1 | 6 |
| 8 | 3 | 1 | 4 | 2 | 0 | 1 | 11 |
| 9 | 4 | 1 | 0 | 1 | 1 | 1 | 8 |
| 10 | 2 | 2 | 1 | 0 | 0 | 0 | 5 |
| 11 | 1 | 1 | 0 | 7 | 1 | 2 | 12 |
| 12 | 1 | 4 | 2 | 3 | 2 | 1 | 13 |
| 13 | 2 | 3 | 1 | 4 | 3 | 0 | 13 |
| 14 | 1 | 3 | 1 | 5 | 3 | 1 | 14 |
| 15 | 1 | 1 | 1 | 1 | 2 | 0 | 6 |
| 16 | 1 | 3 | 2 | 2 | 4 | 0 | 12 |
| 17 | 2 | 3 | 3 | 0 | 1 | 0 | 9 |
| 18 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| 19 | 0 | 1 | 0 | 2 | 0 | 0 | 3 |
| 20 | 0 | 0 | 0 | 1 | 3 | 0 | 4 |
| 21 | 0 | 1 | 0 | 0 | 1 | 1 | 3 |
| 22 | 4 | 2 | 2 | 1 | 3 | 1 | 13 |
| 23 | 1 | 1 | 1 | 0 | 0 | 3 | 6 |

Source: Guerrero.

Table 8. Comparison of the Vasquez and the Guerrero Models.

| | Vasquez | Guerrero |
|---|---|---|
| Population | Households of three provinces | Depositors of seven branches |
| Dependent variable | Average monthly gross flow of household de-deposits in all formal intermediaries, for Aug 1983-Aug 1984. | Average time-weighted balance from opening date through May, 1986. |
| Independent Variables: | | |
| Income | Monthly household income Aug 1983-Aug 1984. (+) | Monthly household income Aug 1985-Aug 1986. (+) |
| Dependency ratio | Members below 14 years of age/economically active (-) | Not used. |
| Wealth | Index of the quality of the house (+,-) | Estimated value of selected tangible assets (+,-) |
| Interest Rates and inflation | Nominal annual interest rate earned. (+) | Regional inflation rates. (-) |
| Education | Highest level of schooling (+,-) | Highest level of schooling (+,-) |
| Occupation | Index of occupation level. (+,-) | Not used. |
| Financial intermediation | Index of the type and number of formal institutions (+) | Number of formal intermediaries. (-) |
| Transaction costs | Not used. | Cost per transaction. (-) |
| Loan expectation | Not used. | Dummy variable for borrowers. (+) |

Table 9. Dominican Republic: Variables for the Analysis of Depositor Behavior. Survey Results. 1986.

| | Type of Depositor | | Total |
|---|---|---|---|
| | Nonborrower | Borrower | |
| Number of Depositors | 130 | 123 | 253 |
| Deposit Balance (DR$) | | | |
| Descriptive Statistics | | | |
| Mean | 714 | 426 | 574 |
| Median | 253 | 30 | 82 |
| Standard Deviation | 1153 | 1163 | 1164 |
| Minimum value | 5 | 5 | 5 |
| Maximum value | 7444 | 8492 | 8492 |
| Frequency Distribution | | | |
| DR$ 5 | 6 | 10 | 16 |
| 6 - 150 | 51 | 82 | 133 |
| 151 - 300 | 9 | 6 | 15 |
| 301 - 500 | 13 | 3 | 16 |
| 501 - 1000 | 25 | 10 | 35 |
| 1001 - 5000 | 25 | 9 | 34 |
| 5001 - 10000 | 1 | 3 | 4 |
| Income (DR$) | | | |
| Descriptive Statistics | | | |
| Mean | 574 | 560 | 567 |
| Median | 437 | 333 | 400 |
| Standard Deviation | 495 | 712 | 609 |
| Minimum value | 15 | 48 | 15 |
| Maximum value | 3000 | 5000 | 5000 |
| Frequency Distribution | | | |
| Up to DR$ 100 | 13 | 15 | 28 |
| 101 - 300 | 32 | 43 | 75 |
| 301 - 500 | 35 | 28 | 63 |
| 501 - 1000 | 34 | 23 | 57 |
| 501 - 1000 | 25 | 10 | 35 |
| 1001 - 5000 | 16 | 14 | 30 |

Table 9 (cont.)

| | Type of Depositor | | Total |
|---|---|---|---|
| | Nonborrower | Borrower | |
| **Wealth (DR$ thousand)** | | | |
| *Descriptive Statistics* | | | |
| Mean | 65.2 | 75.2 | 70.0 |
| Median | 15.3 | 32.5 | 20.5 |
| Standard Deviation | 170.7 | 136.8 | 154.9 |
| Minimum value | 0 | 0 | 0 |
| Maximum value | 1070.0 | 990.5 | 1070.0 |
| *Frequency Distribution* | | | |
| Up to 10 | 50 | 33 | 83 |
| 11 - 30 | 39 | 27 | 66 |
| 31 - 60 | 21 | 23 | 44 |
| 61 - 100 | 9 | 16 | 25 |
| 101 - 500 | 5 | 21 | 26 |
| 501 - 1500 | 6 | 3 | 9 |
| **Transaction costs (DR$)** | | | |
| *Descriptive Statistics* | | | |
| Mean | 5.5 | 10.4 | 7.9 |
| Median | 2.0 | 6.9 | 4.5 |
| Standard Deviation | 8.8 | 12.8 | 11.2 |
| Minimum value | 0.1 | 0.2 | 0.1 |
| Maximum value | 64.9 | 90.6 | 90.6 |
| *Frequency Distribution* | | | |
| Up to DR$ 1 | 38 | 9 | 47 |
| 1.1 - 2.0 | 27 | 9 | 36 |
| 2.1 - 3.0 | 11 | 7 | 18 |
| 3.1 - 4.0 | 11 | 7 | 18 |
| 4.1 - 5.0 | 6 | 6 | 12 |
| 5.1 - 10.0 | 16 | 42 | 58 |
| 10.1 - 20.0 | 14 | 31 | 45 |
| 20.1 - 40.0 | 6 | 8 | 14 |
| 40.1 - 95.0 | 1 | 4 | 5 |

Source: Guerrero.

Table 10. Dominican Republic: Results of the Tobit Regression Model for Household Deposit Behavior. 1984.

Pooled Data

| Variable | Coefficient | Asymptotic t-Ratio | Asymptotic Significance |
|---|---|---|---|
| Intercept | 5021.02* | 2.455 | 0.0141 |
| **Ability** | | | |
| 1/Income | -31.11* | 7.322 | 0.0001 |
| Dependency ratio | -6.38 | 1.435 | 0.1513 |
| **Willingness** | | | |
| Interest rate | 2029.58* | 12.876 | 0.0001 |
| Education | -2.32 | 0.916 | 0.3597 |
| Occupation | 3.18** | 1.606 | 0.1081 |
| **Opportunity** | | | |
| Financial intermediation | -5132.45* | 2.509 | 0.0121 |
| **Dummies for Location** | | | |
| L2 | 20540.22* | 2.509 | 0.0121 |
| L3 | 10277.46* | 2.511 | 0.0120 |

| | | |
|---|---|---|
| Likelihood ratio: | 445.7 | $X^2_{(.01,7)} = 18.48$ |
| Number of observations in model: | 473 | |
| Number of observations above the limit: | 164 | $R^2 = .32$ |

* Coefficient significant at 1 percent.
** Coefficient significant at 10 percent.

Source: Vasquez.

Table 11. Dominican Republic: Results of the Tobit Regression Model for Household Deposit Behavior. 1984.

Urban

| Variable | Coefficient | Asymptotic t-Ratio | Asymptotic Significance |
|---|---|---|---|
| Intercept | 5612.62** | 2.105 | 0.0353 |
| Ability | | | |
| 1/Income | -14.41* | 3.644 | 0.0003 |
| Dependency ratio | -4.34 | 0.832 | 0.4053 |
| Wealth | 4.11 | 0.696 | 0.4867 |
| Willingness | | | |
| Interest rate | 1424.20* | 8.256 | 0.0001 |
| Education | 1.90 | 0.639 | 0.5230 |
| Occupation | 2.04 | 0.705 | 0.4810 |
| Opportunity | | | |
| Financial intermediation | -5701.30** | 2.136 | 0.0327 |
| Dummies for Location | | | |
| L2 | 22791.17** | 2.134 | 0.0328 |
| L3 | 11409.98** | 2.137 | 0.0326 |
| SL2 | 8.45** | 0.957 | 0.3383 |

| | | |
|---|---|---|
| Likelihood ratio: | 158.8 | $X^2_{(.01,9)} = 21.7$ |
| Number of observations in model: | 176 | |
| Number of observations above the limit: | 76 | $R^2 = .27$ |

* Coefficient significant at 1 percent.
** Coefficient significant at 5 percent.

Source: Vasquez.

Table 12. Dominican Republic: Results of the Tobit Regression Model for Household Deposit Behavior. 1984.

Semirural

| Variable | Coefficient | Asymptotic t-Ratio | Asymptotic Significance |
|---|---|---|---|
| Intercept | -152.49* | 2.965 | 0.0030 |
| Ability | | | |
| 1/Income | -55.41* | 3.827 | 0.0001 |
| Dependency ratio | 2.32 | 0.147 | 0.8829 |
| Wealth | -18.31 | 1.454 | 0.1460 |
| Willingness | | | |
| Interest rate | 2925.59* | 5.685 | 0.0001* |
| Education | 5.84 | 0.677 | 0.4983 |
| Occupation | 10.90** | 2.080 | 0.0375 |
| Opportunity | | | |
| Financial intermediation | 1.61 | 0.217 | 0.8280 |

| | | |
|---|---|---|
| Likelihood ratio: | 121.63 | $X^2_{(.01,6)} = 16.81$ |
| Number of observations in model: | 120 | |
| Number of observations above the limit: | 40 | $R^2 = .30$ |

* Coefficient significant at 1 percent.
** Coefficient significant at 5 percent.

Source: Vasquez.

Table 13. Dominican Republic: Results of the Tobit Regression Model for Household Deposit Behavior. 1984.

Rural

| Variable | Coefficient | Asymptotic t-Ratio | Asymptotic Significance |
|---|---|---|---|
| Intercept | 8718.53* | 2.471 | 0.0135 |
| **Ability** | | | |
| 1/Income | -48.16* | 4.395 | 0.0001 |
| Dependency ratio | -2.55 | 0.373 | 0.7092 |
| Wealth | 11.49 | 1.205 | 0.2282 |
| **Willingness** | | | |
| Interest rate | 2421.96* | 7.376 | 0.0001 |
| Education | -8.23** | 1.856 | 0.0634 |
| Occupation | 0.99 | 0.342 | 0.7323 |
| **Opportunity** | | | |
| Financial intermediation | -8877.57* | 2.518 | 0.0118 |
| **Dummies for Location** | | | |
| L2 | 35530.56* | 2.520 | 0.0117 |
| L3 | 17783.13* | 2.523 | 0.0116 |

| | | |
|---|---|---|
| Likelihood ratio: | 193.8 | $X^2_{(.01,8)} = 20.1$ |
| Number of observations in model: | 177 | |
| Number of observations above the limit: | 51 | $R^2 = .35$ |

* Coefficient significant at 1 percent.
** Coefficient significant at 10 percent.

Source: Vasquez.

Table 14. Dominican Republic: Estimation of Regression Equation of Determinants of Deposits by OLS.

| Variables | Equations | | | | | |
|---|---|---|---|---|---|---|
| | Pooled | | Borrowers | | Non-Borrowers | |
| | Coeff. | t ratio | Coeff. | t ratio | Coeff. | t ratio |
| Intercept | 7.002 | 1.88*** | 12.214 | 1.77*** | 6.202 | 1.41 |
| Income | 0.465 | 3.54* | 0.459 | 2.42** | 0.394 | 2.20** |
| Wealth | 0.036 | 1.34 | 0.183 | 2.92* | 0.005 | 0.18 |
| Inflation | -1.564 | -1.37 | -3.379 | -1.58 | -1.331 | -0.99 |
| Education | 0.392 | 1.59 | -0.001 | -0.03 | 0.786 | 2.35** |
| Costs | -0.359 | -3.68* | -0.418 | -2.70* | -0.285 | -2.29** |
| Other banks | -0.037 | -2.26** | -0.015 | -0.620 | -0.052 | -2.40** |
| Loans | -0.620 | -2.56** | - | - | - | - |
| R-Square | 0.282 | - | 0.209 | - | 0.275 | - |
| ADJ-R-SQ | 0.262 | - | 0.168 | - | 0.240 | - |
| Observations | 253 | - | 123 | - | 130 | - |

* Significant at .01 level
** Significant at 0.05 level
*** Significant at 0.10 level

Source: Guerrero.